The Ulster Medical Journal, Volume 65, No. 2, pp. 126-130, November 1996.

Casualties of the Sun

C E Willis, B Smyth

Accepted September 1996

Summary

A retrospective review was carried out of all sunburn related attendances, during the periods 1/6/94 – 31/8/94 and 1/6/95 – 31/8/95, at the four A&E departments and at one of the general practices within the Northern Health and Social Services Board area. Four hundred and thirty patients had attended. The modal age group was 16-30 years. More males presented than females. Within the sexes more males presented in the under 16 years and over 30 years age group, while females were more common in the 16-30 years age group. There was documentation of blisters in 30% of patients. Those with blisters were more likely to be under 16 years and male. In females the most and least commonly affected areas correlated with the most and least commonly affected areas for cutaneous malignant melanoma. In these days of limited resources it is important to use epidemiological data such as this in order to contribute to the development of health promotion programmes and campaigns.

INTRODUCTION

The evidence relating cutaneous malignant melanoma to previous sun exposure is now very strong.[1] However, despite this widely established relationship and extensive health promotion within the public domain, sunburn and sun-related illness continue to be a major problem within Northern Ireland.

Epidemiological studies suggest that sun exposure up to age 20 initiates a process of carcinogenesis that manifests 40 – 60 years later.[2] About 90% of skin cancers are non-melanoma cancers, approximately 80% of these being basal cell carcinomas and most of the rest being squamous cell carcinomas.[3] In the UK the incidence of basal cell carcinoma has risen by 238% in 14 years.[2]

Non-melanoma skin cancers rarely metastasize and are seldom fatal. Malignant melanoma is the third form of skin cancer which is comparatively rare but much more serious. Between the periods 1974-78 and 1984-88 the incidence of cutaneous malignant melanoma (CMM) within the province doubled.[4] This reflects the worldwide increase in this disease which is greater than most reported studies.[4]

Many factors contribute to this growing problem, including Celtic skin type, the greater availability of sunbeds, package holidays, the suntan status symbol, the continuing failure of many to recognise the dangers of solar damage and diagnostic delay.[4]

It was as a response to the growing incidence of CMM that the four Health and Social Services Boards developed a "Care in the Sun" Health Promotion programme. This began in 1990, and included among its objectives are programmes:

1. To raise public awareness of the dangers of overexposure to the sun, both at home and abroad.
2. To raise awareness among primary school children of the long term dangers of sunburn.
3. To promote the primary prevention message among those professionals involved in care of pre-school children.
4. To raise awareness and increase recognition of CMM by general practitioners.

However, despite this ongoing work, during the unusually hot summer of 1995 the authors became

Department of Public Health Medicine, Northern Health & Social Services Board, 182 Galgorm Road, Ballymena, BT42 1QB.

C E Willis, MB, BCh, DPH, Registrar.

B Smyth, MSc, FRCP, MFPHM, Consultant in Public Health Medicine.

Correspondence to Dr C E Willis.

aware of a marked increase in A&E attendances due to sun-related problems. It was decided, therefore, to review data from A&E attenders to see if this could help target future public awareness initiatives.

MATERIALS AND METHOD

Of the people who develop adverse symptoms as a result of exposure to the sun, only a small, but unknown, fraction will ever seek medical attention. This may be in the form of a GP visit, attendance at an A&E department or advice from a pharmacist. Hospital records are one of the few ways of retrieving epidemiological data in a relatively short and inexpensive manner. An attempt was made to relate the numbers attending A&E to those going to their GP by reviewing data from a 9,500-patient practice within the Northern Board.

All four Northern Board A&E departments were visited by one of the authors in September 1995. A retrospective search was carried out for sun-related attendances during the periods 1/6/94 – 31/8/94 and 1/6/95 – 31/8/95.

This was done either manually by going through registers, looking for a diagnosis of sunburn/ sunstroke or other term implying sun-related injury, or by computer using the Read codes relating to sunburn and looking for free text relating to sunburn. Data from the health centre was downloaded from the practice computer. Details of age, sex, presenting symptoms, area of skin affected, treatment given and follow-up required were extracted from the notes, along with any other relevant information.

The data was entered into a Statistical Package for Social Sciences (SPSS). Descriptive and inferential analyses were carried out as appropriate.

RESULTS

There were 394 patients who attended the A&E departments and 36 patients who presented to their GP during the studied periods in 1994 and 1995. The results were analysed in two groups, according to the place of presentation.

Hospital A&E Departments

Of the 394 attenders, 74 patients presented in the period from 1st June – 31st August 1994 and 320 from 1st June – 31st August 1995.

In June 1994 sun-related injury accounted for 0.3% of the total new patient attendances, whereas in June 1995 it accounted for 2.9%; this represents almost a ten-fold increase.

Of the total attenders, 215 (55%) were male and 179 (45%) were female. The ratio was similar for both years and in each A&E department.

The patients were divided into age bands for statistical purposes as shown in Table I.

In two cases there was no date of birth available.

Further analysis of the <16 years group revealed that there were 52 (13% of total attenders) in the <11 and 25 patients (6%) in the <5 years age group. When each A&E department was studied individually the ages showed a similar pattern of spread.

The mean and median ages of presentation were 24 years and 22 years respectively with a range of six months to 82 years. This pattern was the same for both years.

Using combined figures for 1994 and 1995, there was a significant difference in ages presenting between the sexes, with significantly more males presenting in the <16 years and >30 years groups and significantly more females in the 16-30 year age group ($p = 0.04$).

On review of the case notes for both years, three had a diagnosis of sunstroke and eleven others had symptoms of sunstroke, i.e. nausea, headache and dizziness, documented. None required admission. Fourteen patients were sun-burnt on holiday outside the United Kingdom. Two were burnt under a sunlamp, one on the face and the other on the back. Three patients were pregnant and two had an underlying skin condition – psoriasis and systemic lupus erythematosus respectively.

TABLE I

Age of Presenting Patients

Age Group (years)	*1994*	*1995*	*Total (%)*
<16	16	73	89 (23)
16-30	35	166	201 (51)
31-45	18	58	76 (19)
46-60	2	17	19 (5)
>61	3	4	7 (2)

TABLE II

Areas Affected by Sun

Area Affected	*Males*	*Females*
Trunk	123	65
Legs	61	84
Arms	39	32
Head and neck	28	26
Feet	12	21

The areas of the body affected are presented in Table II. The frequencies for the sexes are presented in Figure 1 for comparison. The numbers add up to >394, and >100%, as some patients had more than one area affected. The pattern of areas affected was similar for the patients in 1994 and 1995. No information was available regarding area affected in 26 patients.

In 118 cases (30%) there was documentation of blisters being present; in 55 cases it was documented that no blisters were present, in 221 cases blisters were not mentioned in the notes. Of those with blisters 75 were male (63.6%), and 43 were female (36.4%). The correlation between blisters and sex was statistically significant ($p = 0.006$). The blistered group were also significantly younger, i.e. in the <16 years age group ($p = 0.001$), with 32 of the 118 being in the <11 primary school age group. The commonest areas affected in the blistered group were legs, shoulders and back.

Treatment administered to the patients included topical cream (66%), analgesia (42%), antihistamines (5%), incision of blisters (4%); antibiotics (2%) were prescribed where it was felt that secondary infection was present. This number adds up to >394 as in some cases more than one treatment was given.

Follow-up was arranged for 123 (31%) patients: 24 were to be reviewed at the A&E department and 99 by their GP. Forty-six (12%) patients were told to come back if their symptoms did not resolve and one did so, while four other patients also reattended when it hadn't been previously arranged. The remaining 221(56%) were not reviewed.

Nine (2%) patients had already seen their GP before attending the A&E department, ranging from four hours to one day previously.

Health Centre Data

Data available from the health centre consisted of age, sex, date of presentation, treatment required and review.

Thirty-six patients presented within the period studied, four patients between 1/6/94 – 31/8/94 and 32 patients between 1/6/95 – 31/8/95.

The data was analysed and comparisons made between it and the group presenting to hospital. Due to the small number in 1994, data from the two time periods were combined.

The mean age of presentation to the GP was 26 years, (median 24 years, range 2 – 53 years). There was no significant difference in age between this group and the group presenting to hospital. The age grouping is shown in Table III.

Thirty-one percent of those who presented to their GP were male and 69% were female. This was significantly different from those presenting at hospital ($p=0.006$).

More patients were treated with creams ($p= 0.002$), analgesia ($p=0.00004$), and antihistamines ($p=0.001$) within the hospital setting than in general practice. No data was recorded on the severity of the signs and symptoms of the GP attenders.

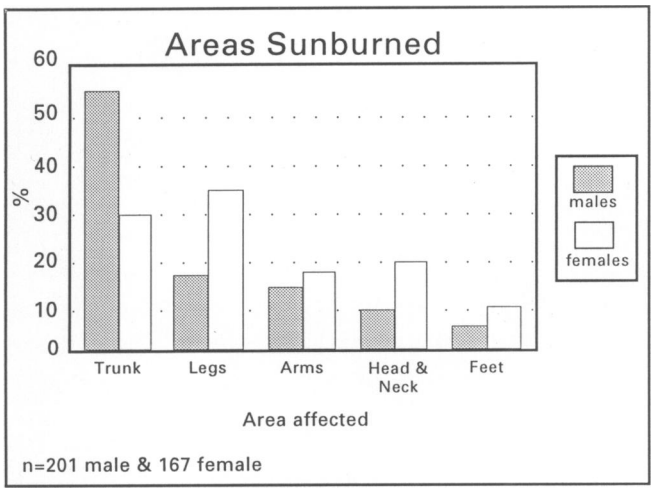
None of the patients seen in general practice were reviewed, in contrast to the 123 patients who returned to hospital for review.

TABLE III

Age of Presenting Patients

Age Group (years)	*Total*
<16	10
16-30	14
31-45	7
46-60	5
>61	0

Fig 1.



DISCUSSION

Exposure to UV radiation is a major contributor to skin cancer. It is repeated sunburn, especially in childhood, which increases the risk of malignant melanoma in later life.

In the UK CMM is the 13th most common cancer in women and the 15th most common in men. In the age group 15-34 years, it is the cause of one in twelve cancers.[3] Females still outnumber males but the gap between the sexes is narrowing. In Northern Ireland it had fallen from 3:1 to 2:1 from the mid 70s to mid 80s.[4]

The present study is a descriptive one of sun-related attendances at A&E departments and may not be representative of sun-related problems within the wider population.

In terms of areas affected by CMM in Northern Ireland, leg is most common in the female, followed by head and neck, then arm and hand, foot and trunk. In the male CMM is commonest on the head and neck, then trunk, leg, arm and hand and foot.[4] The most and least common areas affected by CMM in females are reflected by the areas burnt in this study. In males the pattern of burns correlates more closely with the areas for CMM in the UK, where the trunk is the most common area for CMM.[3]

The fact that younger people were more frequent attenders could be due to reduced tolerance of symptoms, easier access to A&E departments, less inhibition about coming forward for treatment, greater awareness of the danger due to health promotion campaigns or to greater incidence of sunburn in this age group. The same biasing factors could explain why more males attended than females, but more males had blisters, indicating a greater severity of burn, which could explain the higher attendance rate.

A possible explanation for the differences between the GP practice and A&E could be that patients with less severe symptoms attended the practice, therefore requiring less in the way of treatment and review.

The main target population for the "Care in the Sun" campaign has been the pre-school and primary school age groups, and it is encouraging that the numbers presenting in these groups are small, although disappointing that 62% of those in this age group had blisters. The results have identified males under 16 and over 30 years, and females between 16 and 30 years as being the most frequent attenders at A&E departments after a period of hot weather. Perhaps future public awareness programmes should also be directed at these groups.

Key points to be included in health promotion programmes include:

- Identifying suitable areas for targeting, such as the workplace, leisure centres, shops, (in particular where sun screens are sold), and the media, such as fashion magazines.
- The need to explore the development of programmes tailored to particular settings, for example, health visitor consultations with the parents of young children, pharmacists with the general public, as well as continuing the work of nursery and primary school teachers with their pupils and parents.
- The fact that most people in Northern Ireland who attended a medical establishment with a sun-related injury did so as a result of normal local summer activity, not as part of a foreign holiday.

Market research to identify how best to access these groups and impart health promotion messages is therefore essential.

Health promotion is always an uphill struggle, and in these days of limited resources it is important to direct time and energy in a way to achieve maximum benefit for the maximum number. Therefore it is important to review lifestyle factors and use information, such as that provided in this study, to refine and target health promotion interventions.

ACKNOWLEDGEMENTS

The authors thank Dr R S Matthews, Consultant Dermatologist, for his advice and comments; and Miss P McDonald for her help with the data analysis. Thanks also go to the consultant and medical records staff in the A&E departments visited and to Coleraine Health Centre for facilitating the data collection.

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